

Patent claims

1. A pelletized material comprising high- and/or ultrahigh-molecular-weight polyethylene and fillers and/or reinforcing materials.
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2. The pelletized material as claimed in claim 1, wherein the polyethylene is an ultrahigh-molecular-weight polyethylene.
3. The pelletized material as claimed in claim 1, wherein the amounts
10 present of the fillers and/or reinforcing materials are up to 60% by weight, preferably from 0.1 to 40% by weight, based on the pelletized material.
4. The pelletized material as claimed in claim 3, wherein the fillers
15 and/or reinforcing materials are selected from the group consisting of dyes, organic or inorganic pigments, antistats, reinforcing agents, mineral fillers, and synthetic fillers.
5. The pelletized material as claimed in claim 4, wherein the fillers
20 and/or reinforcing materials are selected from the group consisting of carbon black, graphite, metal powder, in particular aluminum powder, mineral powder, in particular wollastonite, reinforcing fibers, in particular glass fibers, carbon fibers, or metal fibers, including whiskers, and glass beads.
- 25 6. A process for producing pelletized materials as claimed in claim 1 with the aid of an extruder, the sections of whose screw are a feed section, a transition section, and a metering section, and the design of whose screw, at least in the transition section, is that of a barrier
30 screw, encompassing the steps of:
 - a) introduction of pulverulent to small-particle HMW and/or UHMW polyethylene and of fillers and/or reinforcing materials into the feed section, which is a double-flighted screw section formed from a conveying region whose length
35 is from 2 to 16 times the screw diameter, and a decompression region whose length is from 5 to 8 times the screw diameter, the screw here having a flight depth of from 4 to 10 mm in the region of the feed section,

- 5 b) transport of the HMW and/or UHMW polyethylene and of the filler and/or reinforcing material through the feed section with the aid of the screw,

 c) transport of the HMW and/or UHMW polyethylene and of the filler and/or reinforcing material with the aid of the screw into the transition section, which is composed of a shear region whose length is from 1 to 6 times the screw diameter, and

10 d) transport of the HMW and/or UHMW polyethylene and of the filler and/or reinforcing material with the aid of the screw into the metering section, which encompasses a mixing region whose length is from 1 to 4 times the screw diameter,

 e) transport of the HMW and/or UHMW polyethylene and of the filler and/or reinforcing material with the aid of the screw through a die of predetermined geometry, forming at least one extrudate strand, and

15 f) comminuting the at least one extrudate strand in a manner known per se.

- 20 7. The use of the pelletized materials as claimed in claim 1 for producing moldings.

- 25 8. The use of the pelletized materials filled with glass fibers, with glass beads, and/or with wollastonite, as claimed in claim 1, for producing inlet and guiding elements for packaging systems and for draw-off systems, in transport technology, conveying systems, or storage systems, or in the paper and pulp industry.

- 30 9. The use of the carbon-black-filled pelletized materials as claimed in claim 1, for producing inlet and guiding elements for packaging systems and for draw-off systems, in transport technology, conveying systems, or storage systems, or else in the sport and leisure sector.

- 35 10. The use of aluminum- and/or graphite-filled pelletized materials as claimed in claim 1, for producing bearings or pile-driver cushion head linings.